REMARKS/ARGUMENTS

Applicant has reviewed and considered the Office Action dated September 19, 2006 and the references cited therein. In response thereto, claims 9, 22, and 32 are canceled without prejudice or disclaimer, and claims 66-96 were previously canceled without prejudice or disclaimer. As a result, claims 1-8, 10-21, and 23-31, and 33-65 are pending.

Rejection Under 35 U.S.C. § 102 and 103

Claims 1-3, 5-11, 13, 14, 33-38, and 40-42 are rejected under 35 U.S.C. § 102(e) as being anticipated by Hossain et al. (U.S. Patent No. 6,242,785). Claims 4, 10, 12, 15-32, 39, and 44-64 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hossain et al. (U.S. Patent No. 6,242,785) in view of Wallace et al. (U.S. Patent No. 6,013,553). Applicant respectfully traverses the rejection for at least the following reasons.

Claim 1 recites a method for manufacture of a device for regulating the flow of electrical current, which comprises the steps of providing for a semiconductor substrate; providing for an electrically insulating layer in contact with the semiconductor substrate, the insulating layer having a dielectric constant greater than 4.0; providing for a gate electrode in contact with at least a portion of the insulating layer; and providing a source electrode and a drain electrode in contact with the semiconductor substrate and proximal to the gate electrode wherein at least one of the source electrode and the drain electrode forms a Schottky contact or Schottky-like region with the semiconductor substrate.

Hossain discloses a method of manufacturing a semiconductor device. More particularly, Hossain discloses a method of manufacturing an impurity-doped source and drain Metal Oxide Semiconductor Field Effect Transistor (MOSFET) semiconductor device. However, Hossain does not disclose or teach a semiconductor device manufacturing method that provides a source electrode and a drain electrode in contact with the semiconductor substrate and proximal to the gate electrode wherein at least one of the source electrode and the drain electrode forms a Schottky contact or Schottky-like region with the semiconductor substrate as recited in claim 1 and claims 15 and 24. Further, Hossain fails to disclose or teach reacting the metal with the

exposed semiconductor substrate such that a Schottky or Schottky-like source electrode and drain electrode are formed on the semiconductor substrate as recited in claims 33, 44, and 55.

With respect to claims 1, 15, and 24, the Examiner states that Hossain discloses:

> *...wherein at least one of the source electrode and the drain electrode (Fig.12, source and drain 30) forms a Schottky contact or Schottky-like region (Fig. 9-13, column 9 lines 20-45, a metal layer (40) selected from platinum tungsten tantalum palladium or nickel and silicided on source and drain to form electrodes) with the semiconductor substrate (Fig. 12,38).*

With respect to claims 33, 44, and 55 the Examiner states that Hossain discloses:

> *...reacting the metal with the exposed semiconductor substrate such that a Schottky or Schottky-like source electrode and drain electrode are formed on the semiconductor substrate (Fig. 13, 46).*

After reviewing Hossain, Applicant respectfully submits that Hossain, more particularly, Figure 12 element 30, Figures 9-13 element 40, Figure 12 element 38, and column 9 lines 20-45 of the specification, does not disclose or teach a semiconductor device manufacturing method wherein the source electrode and drain electrode form a Schottky contact or Schottky-like region with the semiconductor substrate. Hossain discloses that the source and drain regions (Figure 12, element 30) are formed by introducing impurity distributions into the substrate 10 by two impurity introduction processes (Figure 1, element 18 and Figure 6, element 28, respectively) whereby both impurity introduction processes consist of an ion implantation process. As source and drain regions 30 are formed by ion implantation of impurities into the substrate 10, the source and drain regions 30 are materially different from the substrate 10 and are no longer substrate regions following their formation by ion implantation.

Applicant respectfully submits that one of ordinary skill in the art would appreciate that when the source and drain regions 30 are formed from ion implantation technology, as taught by Hossain, they are impurity doped source-drain regions and are not comprised of metal. Furthermore, one of ordinary skill in the art would appreciate that impurity doped source-drain regions 30 in contact with a semiconductor substrate 10 do not form a Schottky contact or

Schottky-like region with the semiconductor substrate, instead forming a p-n junction at the interface between the source-drain region and the substrate.

Further, Hossain discloses that source and drain silicides (Figure 13, 46) are formed on upper surfaces of source and drain regions 30. As discussed in the background section, for impurity doped source and drain transistors,

> *"...sidewall spacers are useful in forming a self-aligned silicide, or salicide, subsequent to source and drain formation. Salicides are formed in order to provide relatively broad-area, low resistivity (and therefore low-resistance) contact to the source, drain, and gate of a transistor (Column 1, lines 50-55).*

Applicant respectfully submits that the purpose of the source and drain silicides 46 are to provide a low-resistance contact to the source and drain regions 30. As discussed above, the source and drain regions 30, following formation by ion implantation technology, are no longer considered semiconductor substrate regions. One of ordinary skill in the art would understand that the source and drain silicides 46, as taught by Hossain, do not contact the semiconductor substrate 10 and therefore do not form a Schottky contact or Schottky-like region with the semiconductor substrate 10.

In summary, Applicant respectfully submits that Hossain does not disclose or teach a process that provides a metal layer in contact with the semiconductor substrate. As a result, Hossain does not disclose or teach that at least one source electrode and drain electrode form a Schottky contact or Schottky-like region with the semiconductor substrate as recited, but rather teaches an impurity-doped source-drain device whereby the source-drain regions form a p-n junction with the semiconductor substrate, not a Schottky contact or Schottky-like region with the semiconductor substrate as recited in the claims.

None of the other cited references remedy the deficiencies as discussed above. Thus, Applicant respectfully submits that claims 1-8, 10-21, 23-32, and 33-65 patentable distinguish over the cited references.

Conclusion

In view of the above, it is respectfully submitted that the present application is in condition for allowance. Reconsideration of the present application and a favorable response are respectfully requested.

If a telephone conference would be helpful in resolving any remaining issues, please contact the undersigned at 612-752-7367.

Respectfully submitted,

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